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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,395	11/13/2001	Philippe Thiebaud	A34754-070337.0285	1077
21003	7590	02/12/2004	EXAMINER MAKI, STEVEN D	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			ART UNIT 1733	PAPER NUMBER

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,395

Applicant(s)

THIEBAUD, PHILIPPE

Examiner

Steven D. Maki

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003 and 27 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: corrected PTO 1449.

Art Unit: 1733

- 1) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 2) Claims 1 and 3-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 11, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the subject matter of "each well has a cross-sectional area S and a depth H such that H is a substantially large fraction of the thickness of the tread and at least greater than 5 mm, and such that the cross sectional dimensions of the well are a substantially small fraction of H" (emphasis added).

As to "substantially large fraction", the original specification describes the well as "extending over part of the thickness of the tread" instead of the well having a depth being "a substantially large fraction of the thickness of the tread". The description of "part" does not reasonably convey "a substantially large fraction" (which has no explicit basis in the original disclosure). Although the original disclosure appears to illustrate the wells as having the same depth as the transverse grooves (figure 6) and describes the wells as having a depth

Art Unit: 1733

"substantially equal to the depth of the transverse incisions" (see description relating to figure 9), the original disclosure does not expressly equate the tread thickness with the depth of the cutout (groove or incision). Also, a fraction can be greater than 1.0. None of applicant's figures show the depth of the wells as being greater than the tread thickness / cutout depth and therefore cannot support the above quoted language.

As to "substantially small fraction" (which can be greater than or less than 1.0), the original specification defines the well as having a "small section" instead of "a substantially small fraction of the depth H" (which has no explicit basis in the original disclosure). The original disclosure fails to define cross-sectional dimensions and fails to disclose how such dimensions should relate to depth H.

As to claims 3, 4 and 5, the subject matter of the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the *combination* of (1) "each well has a cross-sectional area S and a depth H such that H is a substantially large fraction of the thickness of the tread and at least greater than 5 mm, and such that the cross sectional dimensions of the well are a substantially small fraction of H" *and* (2) the limitation in claims 3, 4 or 5. The illustration of *each* of the depths in figures 3, 4, 5 and 8 are not seen as being a substantially large fraction of the tread thickness. For example, the depth of the well closest to trailing face 22 in figure 3 (the far left well) is not seen as having a depth being a substantially large fraction of the tread thickness.

Art Unit: 1733

As to claim 11, the subject matter of the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the limitation of "the front section has lower wear resistance than an average wear resistance of the tread element and the rear section has a higher wear resistance than the average wear resistance". Although the original disclosure describes reducing the rate of wear on the trailing edge and reducing the difference in wear between the leading edge and the trailing edge, the original disclosure fails to support the front section having a lower wear resistance.

3) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4) Claims 1 and 3-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 11, the scope and meaning of "each well has a cross-sectional area S and a depth H such that H is a substantially large fraction of the thickness of the tread and at least greater than 5 mm, and such that the cross sectional dimensions of the well are a substantially small fraction of H" (emphasis added) is unclear; the original disclosure providing no guidance as to the definition of either "substantially large fraction" or "substantially small fraction". For example, it is unclear if this language limits claims 1 and 11 to wells

Art Unit: 1733

having a depth being substantially equal to the depth of the cutout as apparently illustrated in figure 6. Another example: it is unclear if this language requires the wells to have a depth greater than the depth of the cutout.

In claim 1, there is no antecedent basis for "the cross sectional dimensions". It is unclear which dimensions are being described.

Claims 3 and 5 are indefinite since they depend on canceled claim 2.

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Japan '328

6) **Claims 1 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '328 (JP 7-81328) in view of Goto et al (US 5160385).**

The wells in claim 1 read on an isolated sipe (a blind sipe). Japan '328, directed to reducing wear, discloses a tire having a tread comprising shoulder rows of blocks wherein each block has four sipes 7 therein. Blocks may also be used in the center section. See paragraph 12 of machine translation. For a non-driving tire, the sipes at the leading end side of the block are shorter than those at the trailing end side. See figure 1, figure 4B. For a driving tire, the sipes at the

Art Unit: 1733

leading end side are longer than those at the trailing end side. See figure 4C, line 4 of paragraph 14 of machine translation, and line 2 of paragraph 16 of machine translation. The depth of the sipes is the same. See last line of paragraph 11 of machine translation. In an example, the lengths of the sipes are 28 mm, 22 mm, 16 mm and 10 mm. See paragraph 14 of machine translation. One of ordinary skill in the art would readily understand that the sipes have the same width since different widths are neither described nor illustrated. All of the blocks of the driving tire C of Japan '328 have a volume V_{pa} (volume of all wells in front section) greater than a volume V_{pf} (volume of all wells in rear section). This volume difference is caused by the differing lengths of the sipes. Japan '328 does not specifically recite that the depth of the sipes is substantially large fraction of thickness of the tread and at least greater than 5 mm.

As to claim 1, it would have been obvious to one of ordinary skill in the art to provide Japan '328's sipes with a depth being a substantially large fraction of thickness of the tread and at least greater than 5 mm since Goto et al, also directed to a heavy duty tire having isolated sipes for controlling wear, suggests providing such sipes with a depth of 25% to 110% of block height wherein the block height is determined by grooves which may have a depth of for example 22 mm. Goto et al teaches that if the depth exceeds 110%, the rubber thickness from the bottom of the blind sipe becomes too thin. Goto et al's teaching that the sipe depth may be as high as 110% of block height provides ample suggestion to provide Japan '328's sipes with a *relatively deep depth* (i.e. a depth of "substantially large fraction of the thickness of the tread"). Furthermore, it would

Art Unit: 1733

have been obvious to provide Japan '328's sipes with a width being "substantially small fraction of depth H" since Goto et al also teaches that such sipes should have a *relatively small width* - a width less than 2.5 mm such as 1.2 mm. This rejection is applied since the claim language of "substantially large fraction of the thickness of the tread and at least greater than 5 mm" and "the cross sectional dimensions of the well are a substantially small fraction of H" fail to exclude blind sipes. In other words, the applied prior art suggests providing blind sipes with a width, length and depth which satisfy the above quoted claim language.

As to claim 6, each block has only four sipes.

As to claim 7, it would have been obvious to one of ordinary skill in the art to arrange the sipes such that the number of sipes decreases as claimed in view of Japan '328's teaching to arrange different length sipes, which may be spaced at different pitches, so as to reduce wear.

As to claim 8, one of ordinary skill in the art would readily understand that Japan '328's blind sipes are perpendicular to the contact face of the tread. In any event: It would have been obvious to provide Japan '328's blind sipes with such an orientation since Goto et al teaches orienting blind sipes so as to be perpendicular to the tread surface.

7) Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '328 in view of Goto et al as applied above and further in view of Japan '502 (JP 2-182502).

As to claims 3 and 5, it would have been obvious to one of ordinary skill in the art to provide the sipes of Japan '328 such that along the length of the block

Art Unit: 1733

the depth increases in addition to the length decreasing (the volume of the sipes thereby necessarily decreasing along the length of the block) since Japan '502 suggests decreasing depth of sipes in blocks toward the trailing end of the block to improve wear resistance.

8) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '328 in view of Goto et al and Japan '502 as applied above and further in view of Europe '104 (EP 810104).

As to claim 4, it would have been obvious to one of ordinary skill in the art to provide Japan '328's sipes with sections of 0.2 to 12 mm² since (1) Japan '328 teaches providing each of the blind sipes for reducing wear with lengths such as 28 mm, 22 mm, 16 mm and 10 mm and (2) Goto et al and Europe '104 suggest providing sipes with a relatively small width; Goto et al teaching a sipe width of less than 2.5 mm and Europe '104 suggesting a sipe width of 0-2 mm, or 0.2-1mm, or 0.4 mm. See col. 1 lines 27-29, col. 8 lines 42-43. With a sipe width of 0.4 mm for example, the sections of the sipes having lengths of 28 mm, 22 mm, 16 mm and 10 mm are 11.2 mm², 8.8 mm², 6.4 mm², 4 mm² (all of which fall within the claimed range).

9) Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '328 in view of Goto et al as applied above and further in view of Europe '104 (EP 810104).

As to claim 11, it would have been obvious to one of ordinary skill in the art to provide Japan '328's sipes with sections of 0.2 to 12 mm² for the same reasons given above for claim 4. With respect to the properties described at the

Art Unit: 1733

last three lines of claim 11, Japan '328's tire has these properties since the rigidity of the front end side of all of the blocks is reduced in the driving wheel tire to reduce wear.

As to claim 12, Japan '328 suggests that blocks comprising the sipes may also be used at the center section. See paragraph 12.

As to claims 9 and 10, it would have been obvious to one of ordinary skill in the art to incline Japan '328's sipes with respect to the radial direction as claimed since Europe '104, which illustrates sipes having about the same depth as the grooves (figure 4) suggests inclining sipes so that the edges of the sipes are maintained and grip is thereby improved.

Benisti

10) Claims 1, 6, 7, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benisti (US 4664166) in view of Kogure et al (US 5355922).

In claim 1, "substantially large fraction" and "substantially small fraction" are subject to interpretation. Benisti discloses a pneumatic tire having blocks having channels (wells). All of the channels (wells) are located at the leading end side (front side) of the block. See figure 5. As can be seen in figures 6, 9, 10 and 12, the channels (wells) clearly have a depth which is (a) deeper than the groove depth and (b) a "substantially large fraction" of the tread thickness. Benisti does not specifically recite that the channels (wells) have a depth of at least 5 mm. However, it would have been obvious to one of ordinary skill in the art to provide the Benisti's channels with a depth greater than 5 mm since

Art Unit: 1733

(a) Benisti teaches providing the channels (wells) with a depth greater than the groove depth and (b) in conventional radial tires for passenger cars the depth of tread grooves usually ranges from 8 to 11 mm as evidenced by Kogure at col. 4 lines 1-3. Furthermore, it would have been obvious to provide the channels (wells) with sections being "substantially small fraction of depth H" depending on the desired tire size and suction phenomenon since (a) Benisti teaches using channels to develop suction, (b) shows the channels as being deeper than the grooves and (c) shows that more than one channel may be used in each block (figure 11). As the number of channels increases, the cross-sectional area of those channels decreases. This relationship can be readily observed by comparing figure 5 and figure 11. In other words, the area of the channel 21 in figure 11 is considered to be a "substantially small fraction" of the channel depth shown in figure 10.

As to claim 6, figure 11 of Benisti shows two channels (wells).

As to claim 7, note that the trailing edge side has zero channels. Claim 7 reads on, for example, the front section having two wells and the rear section having zero wells.

As to claim 9, the channels are slanted at an angle α .

As to claim 11, the limitation of the wells having sections of between 0.2 mm² and 12 mm² would have been obvious and could have been determined without undue experimentation in view of Benisti's teaching to size the channels so as to produce the suction phenomenon. The properties described at the last

Art Unit: 1733

three lines of claim 11 naturally flows from Benisti's teaching to locate the channels at one side (the leading edge side) of the blocks (figure 9).

As to claim 12, Benisti suggests providing channels in all of the blocks.

Remarks

11) Applicant's arguments with respect to claims 1 and 3-12 have been considered but are moot in view of the new ground(s) of rejection.

The 112 second paragraph rejection, the rejection over Suzuki et al and the rejection over Japan '613 have been withdrawn in view of the amendments to claims 1 and 11 and applicant's corresponding arguments in the response filed 10-27-03.

The rejection over Japan '712 has been withdrawn in view of the addition of the limitation of "wells which open only to the upper face" to claims 1 and 11.

During a partial oral translation of Japan '606 by a PTO translator, the following information was obtained: The depth of the indentation 4 is 0.5-6 □□. In an example, the tread width is 250 □□, width of main groove 1 is 4.5 □□, depth of main groove 1 is 8 □□, width of peripheral groove 1-1, 1-2, 1-3, 1-4 is 13 □□, depth of peripheral groove is 8.8 □□, width of horizontal groove 2 is 5 □□, depth of horizontal groove 2 is 7 □□, diameter of indentation 4 is 4 □□ and depth of indentation 4 is 5 □□. According to the PTO translator, "□□" is not a Japanese symbol. Based on the numbers given in the example, the examiner concludes that the units are "mm". In Japan '606's example, the ratio of indentation depth to main groove depth of 62.5% (5 / 8) and the ratio of indentation diameter to indentation depth is 80% (4 / 5). Although Japan '606

Art Unit: 1733

teaches an indentation (well) depth of 6 mm, Japan '606 fails to teach the requirement in amended claim 1 of "each well has a cross-sectional area S and a depth H such that H is a substantially large fraction of the thickness of the tread and at least greater than 5 mm, and such that the cross sectional dimensions of the well are a substantially small fraction of H ".

12) No claim is allowed.

13) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


14) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

Art Unit: 1733

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
February 4, 2004


STEVEN D. MAKI 2-4-04
PRIMARY EXAMINER
~~GROUP 1300~~
AV 1733